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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/802,816

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EXAMINER

DANIELS, MATTHEW J

ART UNIT

PAPER NUMBER

1732

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/24/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/802,816

Applicant(s)

OGINO ET AL.

Examiner

Matthew J. Daniels

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 12-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. **Claims 1-11**, drawn to a mold (apparatus), classified in class 425, subclass 112.
 - II. **Claims 12-23**, drawn to a method, classified in class 264, subclass 284.
2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used to practice another and materially different process, such as detecting the height of a surface feature without imprinting.
3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, due to their recognized divergent subject matter, and because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Alan Schiavelli on 28 December 2006 a provisional election was made **with** traverse to prosecute the invention of Group I, claims 1-11. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Dependent claims are drawn to multiple distinct or mutually exclusive species. Multiple rejections of independent claim 1 are set forth below to address the dependent claims or species.

7. **Claims 1 and 7** are rejected under 35 U.S.C. 102(b) as being anticipated by Bender (Microelectronic Engineering, Vol. 61-62, 2002, pages 407-413). **As to Claim 1**, Bender teaches a nanoprint mold (nanostructures on page 408, line 12) for forming a fine structure on a substrate with the use of a press machine (page 410, Section 3, “imprint tool” in line 2), said mold comprising a release mechanism (page 409, Section 2.2, “anti-adhesion monolayer” in line 2). **As to Claim 7**, Bender provides a light-transmitting mold (quartz mold, page 409, first line, also see the title “UV-based” which inherently requires a mold that transmits light)

8. **Claims 1-3** are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson (Master of Science in Engineering Thesis, University of Texas at Austin, 1999). **As to Claim 1**, Johnson teaches a nanoprint mold (pages 59-60) for forming a fine structure on a substrate with the use of a press machine (page 13), said mold comprising a release mechanism (page 60, left portion of Fig. 5.5). **As to Claim 2**, the mold of Johnson is provided with a curved surface on the side on which a concave-convex pattern is formed (page 60, left portion of Fig. 5.5). **As to Claim 3**, the mold of Johnson is provided with a side where the pattern is formed inclined such that a center portion of the substrate has a large thickness (page 60, left portion of Fig. 5.5).

9. **Claims 1, 2, and 4** are rejected under 35 U.S.C. 102(b) as being anticipated by Ruchhoeft (J. Vac. Sci. Technol. B, Vol. 17, No. 6, 1999, pages 2965-2969). **As to Claim 1**, Ruchhoeft teaches a nanoprint mold (Fig. 4, caption) for forming a fine structure on a substrate with the use of a press machine (Fig. 2, page 2967), said mold comprising a release mechanism (page 2966, Fig. 1). **As to Claim 2**, the mold of Ruchhoeft is provided with a curved surface on the side on which a concave-convex pattern is formed (page 2966, Fig. 1). **As to Claim 4**, the mold of Ruchhoeft is provided with a portion of a periphery on the side where the pattern is formed is inclined such that a center portion of the substrate has a small thickness (Fig. 1(c) and Fig. 1(d)).

10. **Claim 1** is rejected under 35 U.S.C. 102(b) as anticipated by Huang (J. Vac. Sci. Technol. B, Vol. 20, No. 6, 2002, pages 2872-2876). **As to Claim 1**, Huang teaches a nanoprint mold (page 2872, "NIL") for forming a fine structure on a substrate with the use of a press

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machine (page 2872, right column), said mold comprising a release mechanism (page 2872, right column, "treated with a surfactant").

11. **Claim 6** is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Huang (J. Vac. Sci. Technol. B, Vol. 20, No. 6, 2002, pages 2872-2876). **As to Claim 6**, Huang teaches a pressing mechanism (page 2872, right column), but Huang does not explicitly teach the press machine comprising a heating mechanism. However, Huang teaches that the press is "pre-heated" (page 2872, right column, fourth line from bottom). Thus, it would have been inherent or obvious that a heating mechanism was present.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Ruchhoeft (J. Vac. Sci. Technol. B, Vol. 17, No. 6, 1999, pages 2965-2969) in view of Biebuyck (USPN 5817242). Ruchhoeft teaches the subject matter of Claim 2 above under 35 USC 102(b). Ruchhoeft also teaches the curved surface of Claim 5, but appears to be silent to the deep groove at a portion of the curved surface. However, Biebuyck teaches a mold having both shallow and deep grooves (Fig. 2B, item 22). It would have been prima facie obvious to one of ordinary skill in the art at

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the time of the invention to incorporate the configuration of Biebuyck into that of Ruchhoeft in order to provide larger imprinted features or to provide imprinted features of greater thickness.

13. **Claims 1 and 8-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rowe (USPN 2201302) in view of Everhart (USPN 6048623). **As to Claim 1**, Rowe teaches a mold (item 11, Fig. 4) for forming a fine structure on a substrate with the use of a press machine (Fig. 1), the mold comprising a release mechanism (flange 14 in Fig. 4, also page 1, right column, lines 46-47). Rowe is silent to the mold being a “nanoprint” mold. However, Everhart teaches a flexible mold which produces nanometer scale features, and is thus a nanoimprint mold (4:55-60). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the mold of Everhart into that of Rowe in order to (1) provide for the controlled placement of materials and formation of very small features which are useful in chemistry and biology and (2) to produce controlled placement of fluids having a chemically reactive, indicator functionality (2:22-25). **As to Claims 8-11**, Rowe teaches a mold wherein the mold is flexible (page 1, right column, line 19), it is secured to a supporter via an elastomer (page 1, right column, lines 40-41), the supporter is circular (Fig. 3), and wherein the mold is provided with an elastomer at an edge of the side of the mold on which the concave-convex pattern is formed, the elastomer facilitating the release of the mold from the substrate (flange 14 in Fig. 4, also page 1, right column, lines 46-47).

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 1/19/07




CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER

1/22/07